

Transmitted Via Facsimile to (571) 273-8300

Attorney Docket: 129491 (12553-1017)
PATENT

IN THE CLAIMS:

1. (currently amended) A method for combining an anatomic structure and metabolic activity for an object, the method comprising:

acquiring a first set of images by scanning the object using a first modality;

acquiring a second set of images by scanning the object using a second modality;

fusing the first and second sets of images to form a fused volume;

identifying a region of interest (ROI) in the fused volume by distinguishing the density of the ROI from the densities of regions outside the ROI, the ROI corresponding to an organ of interest of the object; and

providing a viewing path through the fused volume at least partially following the ROI.

2. (original) A method in accordance with Claim 1 further comprising:

inflating the organ of interest with at least one of gas and air to create a difference in density of the ROI from densities of regions outside the ROI.

3. (canceled)

4. (original) A method in accordance with Claim 1 wherein providing the viewing path comprises providing the ROI that may be viewed in both directions along the viewing path.

5. (original) A method in accordance with Claim 1 further comprising preparing the object for a computed tomograph colonography.

6. (original) A method in accordance with Claim 1 further comprising foregoing preparation of the object for a computed tomograph colonography.

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7. (original) A method in accordance with Claim 1 further comprising foregoing at least one of supine and prone computed tomography (CT) acquisitions.

8. (original) A method in accordance with Claim 1 further comprising:

displaying the fused image; and

displaying at least one of an axial 2-dimensional (2D) CT image of the organ of interest, a sagittal 2D CT image of the organ of interest, and a coronal 2D CT image of the organ of interest.

9. (currently amended) A computer-readable medium encoded with a program configured to instruct a computer to:

determine whether an object has been prepared for a computed tomograph colonography;

determine whether the computed tomography colonography has been performed on determining that the object has been prepared;

determine whether a PET scan has been performed on determining that the computed tomograph colonography has been performed;

fuse at least two of computed tomography (CT) data, single photon emission computed tomography (SPECT) data, and positron emitted tomography (PET) images to form a fused data set if the PET scan has been performed;

identify a region of interest (ROI) in the fused data set, the ROI corresponding to an organ of interest of an object if the PET scan has been performed; and

provide a path through the fused data set along which to view the fused data set if the PET scan has been performed.

Transmitted Via Facsimile to (571) 273-8300

Attorney Docket: 129491 (12553-1017)
PATENT

10. (currently amended) A computer-readable medium in accordance with Claim 9 wherein the program is configured to instruct a computer to:

determine whether the organ of interest is inflated with at least one of gas and air to create a difference in density of the ROI from densities of regions outside the ROI; and

~~execute~~fuse the at least two of CT data, SPECT data, and PET images, identify the ROI, and provide the path through the fused data set if the organ of interest has been inflated.

11. (currently amended) A computer-readable medium in accordance with Claim 9 wherein to identify the ROI the computer program is configured to instruct a computer to distinguish the density of the ROI from the densities of regions outside the ROI.

12. (currently amended) A computer-readable medium in accordance with Claim 9 wherein to provide the path the computer program is configured to instruct a computer to provide a path from one point on an axial line passing through a center of the ROI to another point located on the axial line.

13. (canceled)

14. (canceled)

15. (currently amended) A computer-readable medium in accordance with Claim 9 wherein ~~at least two of the CT data, the PET data, and the CT data,~~ the computer program is configured to instruct a computer to fuse at least two of the CT data, the PET data, and the CT data to obtain a fused volume of a colon cavity, an inside wall of the colon, and an outside wall of the colon.

16. (currently amended) A computer-readable medium in accordance with Claim 9 wherein the computer program is configured to instruct a computer to:

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PATENT

check whether a preparation of the object for a computed tomograph colonography has not been performed; and

execute fuse the at least two of CT data, SPECT data, and PET images, identify the ROI, and provide the path through the fused data set if the preparation has not been performed.

17. (currently amended) A computer-readable medium in accordance with Claim 9 wherein the computer program is configured to instruct a computer to:

check whether at least one of supine and prone CT acquisitions has been foregone; and

execute fuse the at least two of CT data, SPECT data, and PET images, identify the ROI, and provide the path through the fused data set if at least one of the supine and prone CT acquisitions has been foregone.

18. (original) A computer-readable medium in accordance with Claim 9 wherein the computer program is configured to:

instruct a display device to display a fused image corresponding to the fused data set; and

instruct the display device to display at least one of an axial 2-dimensional (2D) CT image of the organ of interest, a sagittal 2D CT image of the organ of interest, and a coronal 2D CT image of the organ of interest.

19. (canceled)

20. (currently amended) An imaging system for combining an anatomic structure and metabolic activity for an object, the imaging system comprising:

a radiation source;

a radiation detector; and

Transmitted Via Facsimile to (571) 273-8300

Attorney Docket: 129491 (12553-1017)
PATENT

a controller operationally coupled to the radiation source and the radiation detector, the controller configured to:

determine whether the colon is inflated with at least one of gas and air to create a difference in density of a region of interest (ROI) from densities of regions outside the ROI;

acquire computed tomography (CT) images generated by performing a CT colonography if the colon has been inflated;

acquire positron emission tomography (PET) images generated by performing a PET scan of a colon of the object if the colon has been inflated;

fuse the CT images and PET images to form a fused volume if the colon has been inflated;

identify the ROI in the fused volume if the colon has been inflated, the ROI corresponding to the colon; and

provide a viewing path through the fused volume of interest partially following the ROI if the colon has been inflated.

21. (canceled)

22. (original) An imaging system in accordance with Claim 20 wherein to provide the viewing path the controller configured to provide the ROI that may viewed in both directions.

23. (currently amended) An imaging system for combining an anatomic structure and metabolic activity for an object, the imaging system comprising:

a radiation source;

a radiation detector; and

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a controller operationally coupled to the radiation source and the radiation detector, the controller configured to:

determine whether the organ of interest is inflated with at least one of gas and air to create a difference in density of a region of interest (ROI) from densities of regions outside the ROI;

acquire computed tomography (CT) images generated by scanning the object using a first modality if the organ of interest has been inflated;

acquire positron emission tomography (PET) images generated by scanning the object using a second modality if the organ of interest has been inflated;

fuse the CT images and PET images to form a fused volume if the organ of interest has been inflated;

identify the ROI in the fused volume if the organ of interest has been inflated, the ROI corresponding to an organ of interest of the object; and

provide a viewing path through the fused volume at least partially following the ROI if the organ of interest has been inflated.

24. (canceled)

25. (original) An imaging system in accordance with Claim 23 wherein to provide the viewing path the controller configured to provide the ROI that may be viewed in both directions along the ROI.